Weston Solutions, Inc.
2300 Clayton Road, Suite 900
Concord, CA 94520
www.westonsolutions.com

October 27, 2022

Mr. Ramon Albizu
Ms. Olivia Trombadore
Ms. Patricia Bowlin
Federal On-Scene Coordinators
U. S. Environmental Protection Agency
Region 9, Emergency Response Section
75 Hawthorne Street
San Francisco, CA 94105

Subject: **PG&E Battery Fire**
Emergency Response Letter Report
Monterey County, California
Task Order No.: 68HE0919F0078
Document Control No.: 0158-08-AAYP

Dear Mr. Albizu, Ms. Trombadore, and Ms. Bowlin,

On September 20, 2022, under Task Order No.: 68HE0919F0078, Subtask 27, Contract No: 68HE0919D0002, the U.S. Environmental Protection Agency (EPA) tasked the Weston Solutions, Inc. (WESTON®) Region 9 Superfund Technical Assessment and Response Team (START) to assist with air monitoring and documentation of emergency response (ER) activities related to a lithium-ion battery fire at the Pacific Gas and Electric (PG&E) Elkhorn Battery Storage Facility in Moss Landing, Monterey County, California, herein referred to as the Site. START mobilized on September 20, 2022, to Moss Landing to support ER activities under the direction of Federal On-Scene Coordinators (OSCs) Ramon Albizu, Olivia Trombadore, and Patricia Bowlin.

This letter report discusses the background, Site description and response activities and presents a summary of the ER activities. **Attachment A** provides the figures for this letter report. **Attachment B** provides a photographic log of Site conditions and ER activities.

BACKGROUND

At approximately 0200 hours on September 20, 2022, a fire was reported to the North Monterey County Fire Protection District. In the early morning, a Tesla Megapack battery caught fire at a PG&E energy storage facility in the community of Moss Landing in Monterey County, CA.

The PG&E Elkhorn Battery Storage Facility contains 256 Tesla megapack battery units on 33 different concrete pads that collectively make up a 182.5-megawatt energy storage system. The PG&E energy storage facility is located west of Highway 1 and Monterey Bay. To the north of the facility are Elkhorn Slough and Moss Landing State Wildlife Area, and beyond that, to the northeast, sits part of the Elkhorn Slough Ecological Reserve.

Due to the potential for inhalation of toxic smoke, the fire department and Monterey County Sheriff's Office issued a shelter-in-place order for properties residing in Moss Landing and surrounding areas. At approximately 0700 hours, California Highway Patrol (CHP) closed a portion of Highway 1 from Molera Road to Jensen Road and a portion of Dolan Road running westbound via Tanques Road near the power plant (**Figure 1**).

The compromised Megapack battery, one of 256 Tesla batteries at the PG&E plant, burned for approximately 5 hours before mostly extinguishing itself. The burned battery pack continued to smolder, raising concerns that the lithium-ion battery might be releasing toxins into the air or might reignite. Incident Command (North Monterey County Fire Department) requested EPA Region 9 technical assistance and resources to conduct air monitoring at the Site.

RESPONSE ACTIVITIES

OSCs Ramon Albizu, Olivia Trombadore, Patricia Bowlin and START arrived on Site at 1500 hours on September 20, 2022. Upon arrival, Tesla representatives, CHP, Monterey County Sheriff's Office, Monterey County Environmental Health and NES Inc., and a private PG&E industrial hygiene contractor, were already on the scene.

The temperature at the Site was 71 °F and the wind was blowing out of the west/northwest at approximately 8 to 12 miles per hour (mph). At 1555 hours, the Incident Command, joined by EPA, held a briefing to discuss current Site conditions and discuss air monitoring activities to make an informed decision whether the shelter-in-place order could be lifted and whether Highway 1 could be reopened. The fire chief also informed EPA that no water had been placed directly on the burning battery to lessen the generation of additional potentially hazardous gases and wastewater. The Incident Command was concerned about the generation of hydrofluoric acid (HF) as a byproduct of fire suppression activities. Tesla officials later confirmed that the battery was not a fluoride-ion battery.

Following the incident briefing, EPA tasked START to conduct air monitoring to determine if the shelter-in-place and road closures could be lifted. At approximately 1700 hours, EPA OSCs and START were escorted by facility personnel into the secured PG&E substation area. The Tesla Megapack batteries were stored on the western half of the facility, and the fire-impacted battery was located on the southeast most concrete pad of the 256-battery storage area.

Four perimeter monitoring locations, three downwind and one upwind, were established at the Site to monitor for particulate and toxic gas concentrations. Three locations included an X-Site kit equipped with a Drager X-am 8000 multi-gas meter and TSI SidePak AM520 particulate monitors (PM10) and a fourth monitoring location utilized a TSI DustTrak 8533 monitor and a MultiRAE multi-gas monitor. The Drager X-am 8000 instruments were co-located with the SidePak instruments and were used to detect volatile organic compounds (VOCs), lower explosive limit (LEL), oxygen, carbon monoxide, and hydrogen sulfide.

At 1715 hours, two air monitoring locations were established downwind of the fire in northern and southeastern positions. The northern and southeastern monitoring locations were co-located with PG&E's on-site subcontractor's air sampling/monitoring locations. The third upwind air monitoring location was placed on the western perimeter of the Site. At the request of EPA, START also deployed a fourth particulate monitor, which was placed approximately 100 yards to the east of the fire adjacent to PG&E facility trailers where a burning odor was reported by Site personnel. A MultiRAE was used to monitor for toxic gas concentrations at the fourth location. By 1800 hours, all real-time air monitoring equipment was deployed and operational (**Figure 2**).

An action level of 3.3 milligrams per cubic meter (mg/m^3) was established at the Site for particulates based on the action level for lithium, as detailed in the Protective Action Criteria – 1 (PAC-1[1]) for uncontrolled releases of hazardous material. The particulate concentrations at the four monitoring locations ranged from 0.001 mg/m^3 to 0.066 mg/m^3. PG&E's subcontractor monitoring data showed comparable particulate concentrations of less than 0.01 mg/m^3.

All multi-gas monitor readings remained at background levels; no elevated toxic gas concentrations were observed at the Site. Additionally, a MultiRAE Pro handheld unit was also used to conduct air monitoring at the facility trailer location to further investigate the burning odor; no toxic gas concentrations above background were observed at this monitoring location.

EPA verbally communicated concentration levels to Incident Command at 1850 hours. Particulate concentrations were below action levels and the risk of reignition for the compromised lithium battery pack was low; therefore, the Incident Command was able to lift the shelter-in-place order for the surrounding communities and reopened Highway 1. EPA continued to monitor levels until 2000 hours at which time the Incident Command conducted a final debrief of the incident. Incident Command remained on-site to monitor the smoldering unit for any further activity.

SUMMARY

EPA tasked START to provide support for an ER in Moss Landing, Monterey County, California, due to a lithium-ion battery fire at the PG&E Elkhorn Battery Storage Facility. START performed air monitoring at one upwind location and three downwind locations around the monitoring perimeter. Multi-gas meters did not detect any hazardous gas concentrations

[1] Based on the Protective Action Criteria – 1 (**PAC-1**) values which include the Temporary Emergency Exposure Limit (**TEEL-1**) for Lithium. The TEEL-1 is the airborne concentration (expressed as parts per million [ppm] or mg/m^3) of a substance above which it is predicted that the general population, including susceptible individuals, when exposed for more than 1 hour, could experience notable discomfort, irritation, or certain asymptomatic, non-sensory effects. However, these effects are not disabling and are transient and reversible upon cessation of exposure.

above background levels. Particulate monitors did not exceed concentrations above a maximum of 0.066 mg/m^3, well below the PAC-1 action level for particulates containing lithium of 3.3 mg/m^3. Following air monitoring efforts, road closures and shelter-in-place order were lifted for Moss Landing and the surrounding areas on the evening of September 20, 2022.

Please feel free to contact me at (707) 592 -1233 if you have any questions or concerns regarding this report.

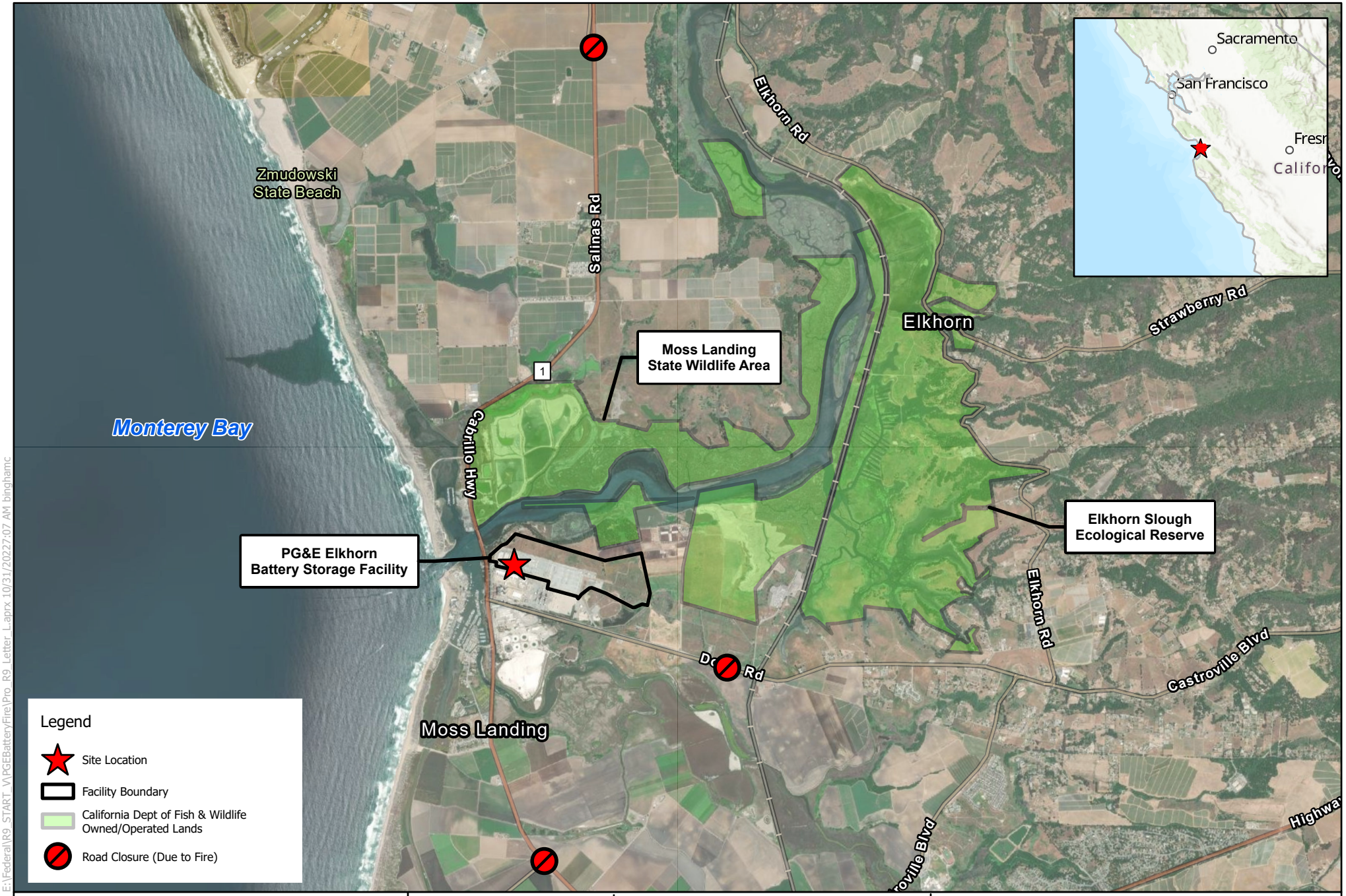
Respectfully,
WESTON SOLUTIONS, Inc.

Amanda Wagner.
START Project Manager

Attachments:
A – Figures
B – Photographic Documentation
C – Particulate Monitoring

cc: WESTON START DCN File

ATTACHMENT A
FIGURES



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Contract:
68HE0919D0002

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DCN:
0158-08-AAYP

Prepared For
EPA Region 9
Pacific Southwest

Prepared By
Weston Solutions, Inc.
Concord, CA 94520
October 2022

FIGURE 1
Site Layout
PG&E Battery Fire Assessment
7301 CA-1
Moss Landing, CA 95039

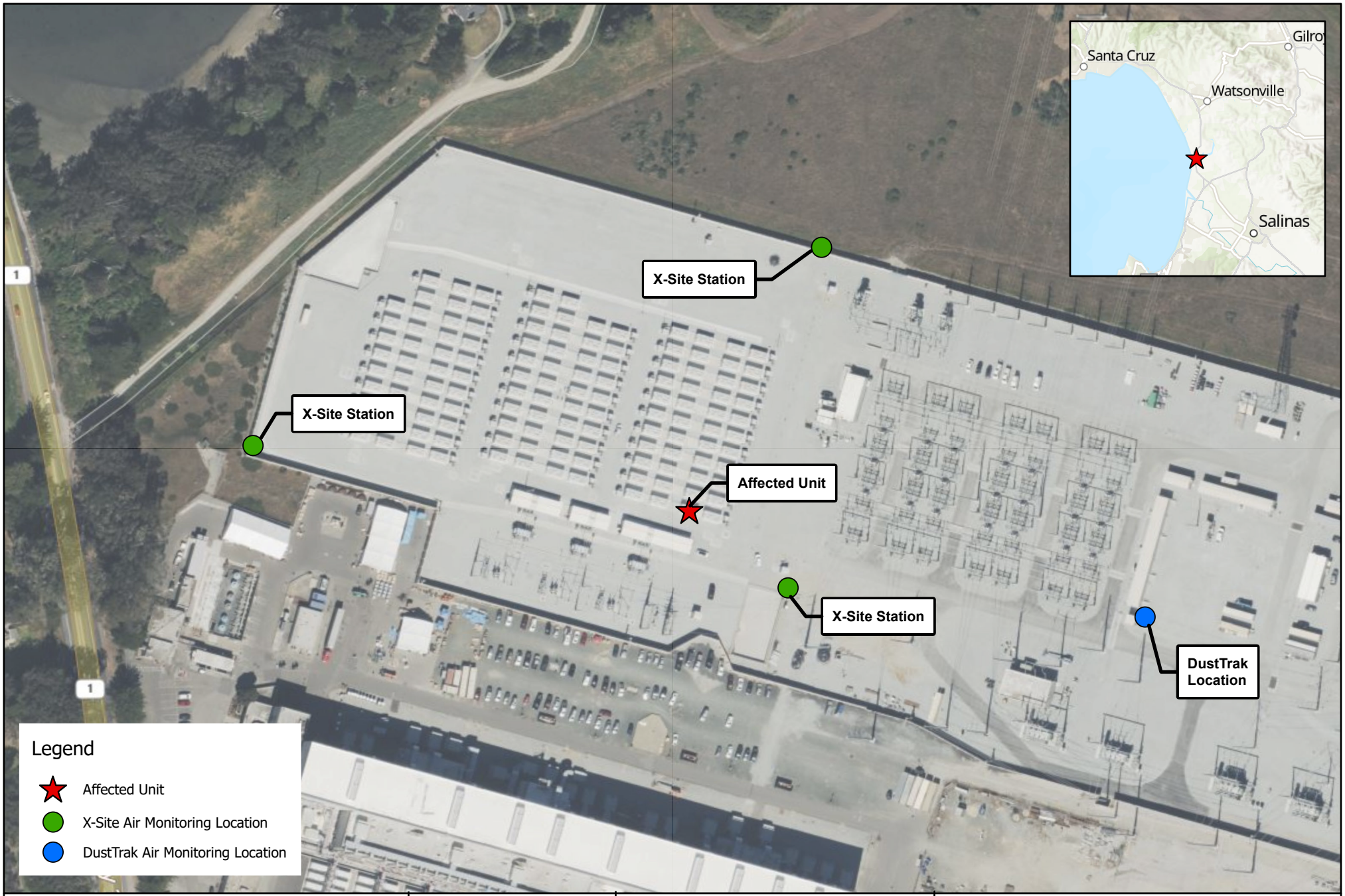

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FIGURE 2
Site Map
PG&E Battery Fire Assessment
7301 CA-1
Moss Landing, CA 95039

ATTACHMENT B
PHOTOGRAPHIC DOCUMENTATION

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PHOTOGRAPH LOG

Project Name:	**Site Location:**	**Task Order No:**
PG&E Battery Fire	7301 CA-1, Moss Landing, CA 95039	68HE0919F0078-27

Photo No.	**Date:**
1	9/20/2022

Location:
South-Eastern Monitoring Station

Description:
X-Site-115 was deployed along the southeastern monitoring perimeter of the battery storage area.

Photo No.	**Date:**
2	9/20/2022

Location:
Western Air Monitoring Station

Description:
X-Site-113 was deployed along the western monitoring perimeter of the battery storage area.

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PHOTOGRAPH LOG

Project Name:	**Site Location:**	**Task Order No:**
PG&E Battery Fire	7301 CA-1, Moss Landing, CA 95039	68HE0919F0078-27

Photo No.	**Date:**
3	9/20/2022

Location:
Northern Monitoring Station

Description:
X-Site-114 was deployed along the northern perimeter of the battery storage area, co-located with the PG&E contractor's air sampling and monitoring equipment.

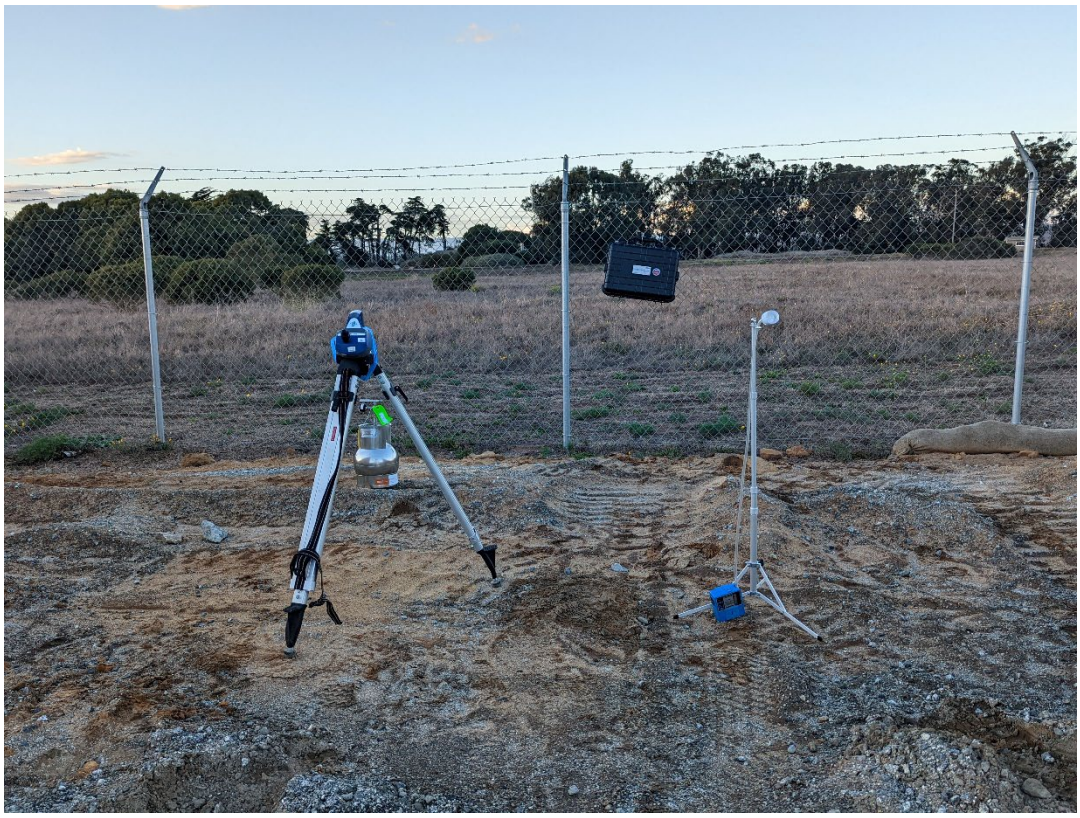


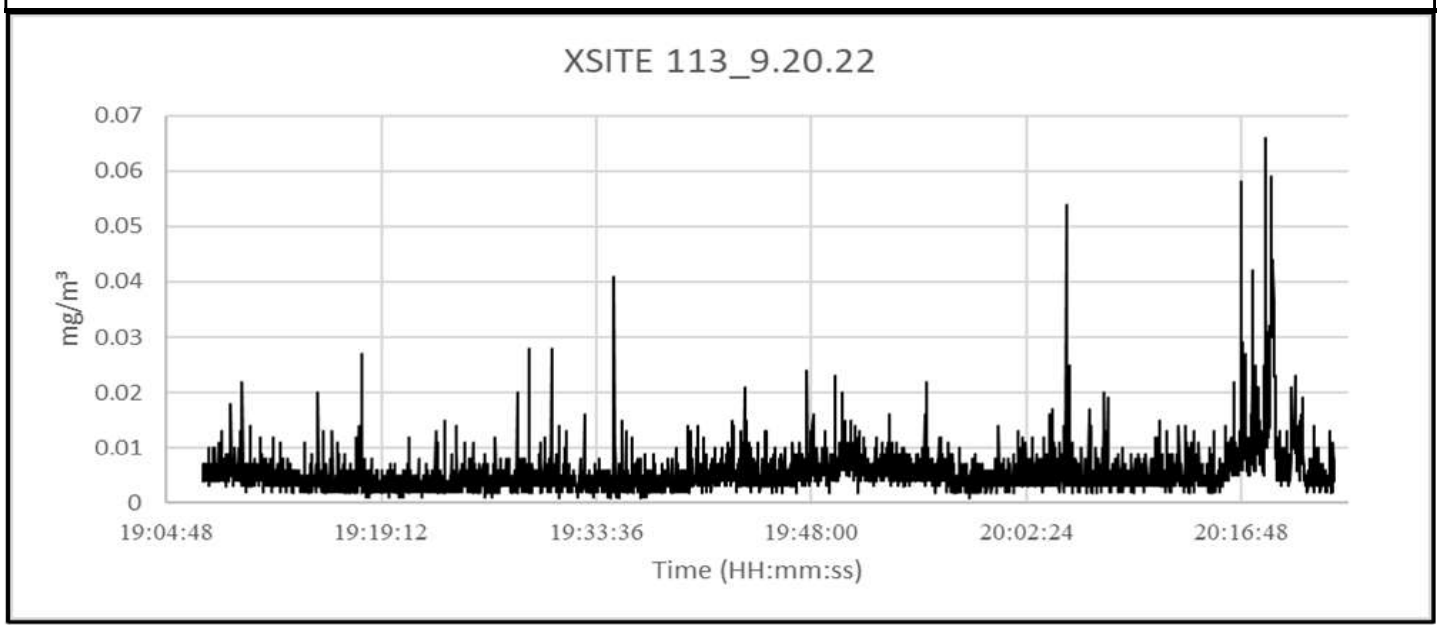
Photo No.	**Date:**
4	9/20/2022

Location:
Outer Eastern Air Monitoring Station

Description:
An additional DustTrak was deployed approximately 100 yards east of the battery storage area.

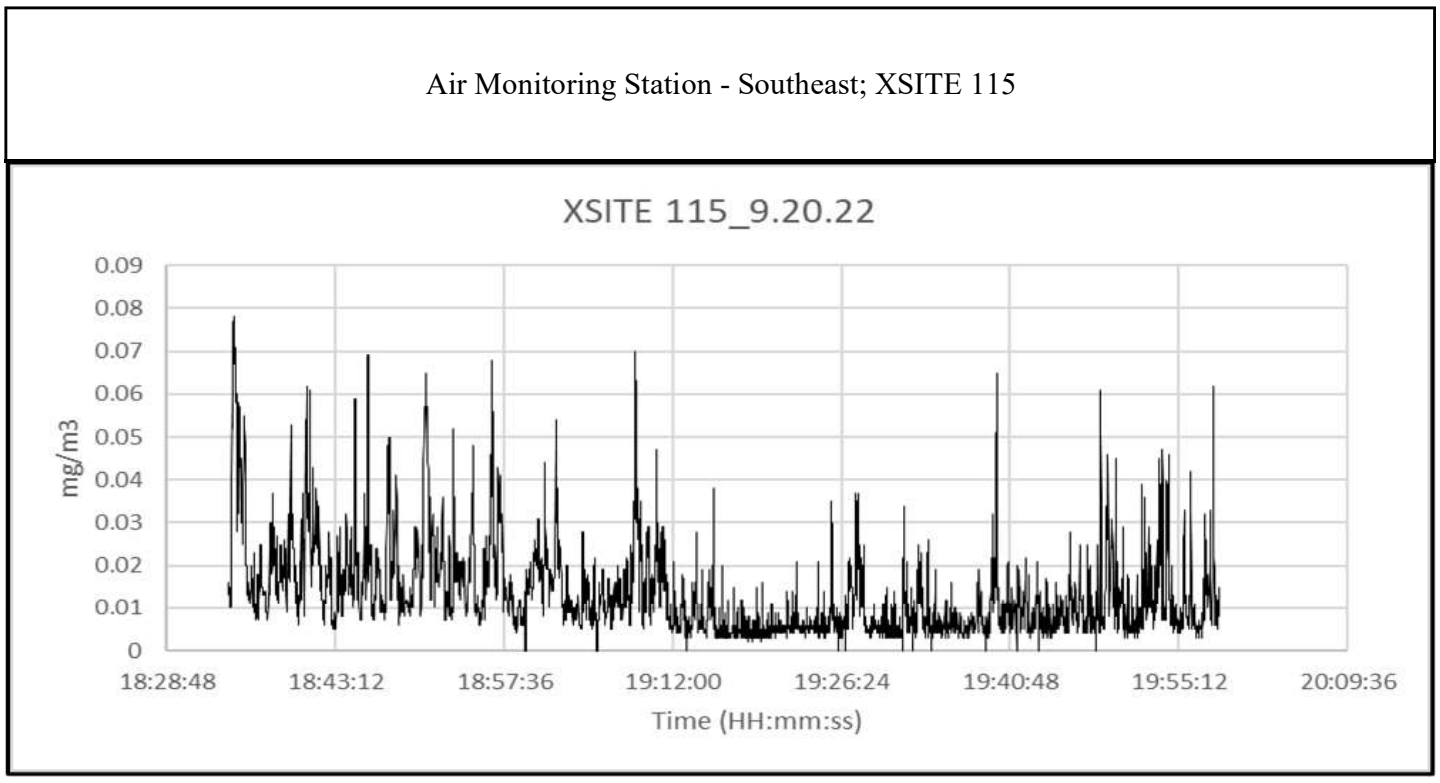
ATTACHMENT C
PARTICULATE MONITORING

Air Monitoring Station - West; XSITE 113



Notes:
Air Monitoring Performed by TSI SidePak AM520 for total particulates (PM10)

Air Monitoring Station - Southeast; XSITE 115

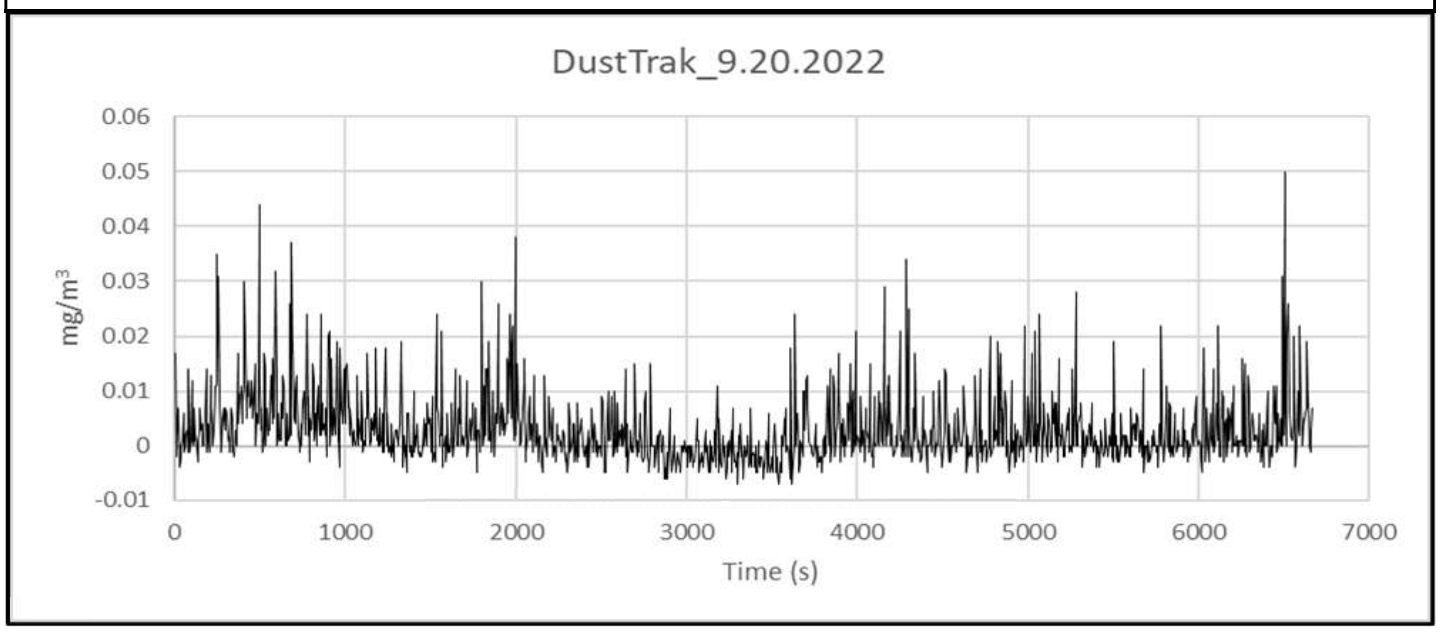


Notes:
Air Monitoring Performed by TSI SidePak AM520 for total particulates (PM10)

Air Monitoring Station - Southeast; XSITE 114

Notes:
Unit could not record data but was regularly monitored by START personnel.
Air Monitoring Performed by TSI SidePak AM520 for total particulates (PM10)

Air Monitoring Station - Outer Perimeter East; DustTrak



Notes:
Air Monitoring Performed by TSI DustTrak 8533 for total particulates (PM10)